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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,815	03/26/2004	Yoshihiro Hori	65933-083	7932
20277 7590 10/04/2007 MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			EXAMINER YOUNG, NICOLE M	
			ART UNIT 2139	PAPER NUMBER
			MAIL DATE 10/04/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/809,815	<b>Applicant(s)</b> HORI ET AL.	
	<b>Examiner</b> Nicole M. Young	<b>Art Unit</b> 2139	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____  |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :3/26/2004, 11/30/2005, 2/27/2006.

## **DETAILED ACTION**

This communication is in response to the application 10/809815 filed March 26, 2004.

Claims 1-18 are pending. The Foreign Priority date of March 28, 2003 is recognized by the Examiner.

### ***Claim Objections***

**Claims 10 and 12** are objected to because of the following informalities:

In claim 10 the last line reads "processings the command belongs". Claim 12 states "input/output processings". "Processings" is a misspelling.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 1-18** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claims 1-18** include the terms "input/output" and "inputting/outputting". The use of a slash does not clearly define the scope of the claims, and they are therefore rendered ambiguous.

**Claims 1-18** include the limitation "the commands being issued by dividing the plurality of serious of cryptographic input/output processing". This statement is unclear to the Examiner, in particular the use of the word "dividing".

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claims 1-11** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1 and 7 recite a storage device with a plurality of "units". The function of each of these units is achieved with the use of software. Therefore, there is not enough structure in the claims. Generally, functional descriptive material, such as a computer program, is statutory when it is stored on a tangible computer readable medium. See MPEP § 2106 IV.B.I(a). Claims 2-6 and 8-11 are dependent claims that do not further provide structure.

The claims as worded also include software written on paper as the storage device.  
The Examiner suggests "a computer readable storage medium with computer instructions stored on it, that when executed by a processor cause..."

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 4, 5, 7, 8, and 10-16** are rejected under 35 U.S.C. 102(b) as being anticipated by **Ohta et al. (US 7,158,637)** herein referred to as Ohta.

Regarding **Claims 1 and 7**, Ohta discloses a storage devices comprising:

a storage medium for retaining data (column 7 lines 43-53); and

a cryptographic processing unit (figure 3 Encryption and Authentication Processing Control Unit) which receives a plurality of commands from a host device to execute the commands upon performing a plurality of series of cryptographic input/output processing for encrypting data to be secured and inputting/outputting the data between the storage medium and a host device, the commands being issued by

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dividing the plurality of series of cryptographic input/output processing each into a plurality of procedures (column 6 lines 1-20, and description of figure 3 particularly in column 6 lines 39-58), wherein

the cryptographic processing unit refers to identifying information attached to the command to identify to which cryptographic input/output processing the command belongs to, then simultaneously performing two or more of the plurality of cryptographic input/output processing procedures (column 2 lines 7-11).

Regarding **Claim 4 and 13**, Ohta discloses the storage device and method according to claims 1 and 12, wherein

the number of the cryptographic input/output processing which can be performed simultaneously by the storage device is predetermined in accordance with a performance of the storage device (column 2 lines 24-61 wherein the processing is achieved by breaking the data into predetermined data blocks according to the data block size for authentication processing).

Regarding **Claims 5, 8, and 14**, Ohta discloses the storage devices and method according to claim 1, 7, and 12 wherein

in response to a request from the host device, the storage device provides to the host device the maximum number of cryptographic input/output processing which can be performed simultaneously by the storage device (column 2 lines 2-61 wherein the

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blocks are accumulated until the appropriate maximum size for the accumulation buffer then outputted).

Regarding **Claims 10 and 12**, Ohta discloses a host device and method which exchanges data with a storage device that is capable of simultaneously performing a plurality of series of cryptographic input/output processing for encrypting data to be secured and inputting/outputting the data, the host device comprising:

a controller which divides the cryptographic input/output processing into a plurality of procedures and issuing commands sequentially to the storage device thereby allowing the storage device in order to make the storage device execute a procedure to be executed on the storage device side (column 6 lines 1-20, and description of figure 3 particularly in column 6 lines 39-58); and

a cryptographic processing unit which carries out encryption or decryption that is required of the cryptographic input/output processing (column 2 lines 7-11), wherein

when the controller issues a command, the controller attaches identifying information to the command to identify to which one of the plurality of cryptographic input/output processings the command belongs (column 6 lines 1-20 where processing information is the identifying information).

Regarding **Claim 11**, Ohta discloses the host device according to claim 10, wherein

the controller issues a command to allocate a process system for performing the cryptographic input/output processing prior to initiation of the cryptographic input/output



processing (column 6 lines 1-20 where processing information is the identifying information and the determination of which kind of processing the data requires is interpreted to be allocating a process system).

Regarding **Claim 15**, Ohta discloses the data input/output method according to claim 13, further comprising, prior to performing the cryptographic input/output processing, selecting and allocating identifying information for identifying the cryptographic input/output processing to be performed from among the prepared number of pieces of identifying information determined in the determining step (column 6 lines 1-20 where processing information is the identifying information and the determination of which kind of processing the data requires is interpreted to be allocating a process system).

Regarding **Claim 16**, Ohta discloses the data input/output method according to claim 14, further comprising, prior to performing the cryptographic input/output processing, selecting and allocating identifying information for identifying the cryptographic input/output processing to be performed from among the prepared number of pieces of identifying information determined in the determining step (column 6 lines 1-20 where processing information is the identifying information and the determination of which kind of processing the data requires is interpreted to be allocating a process system).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 2, 3, 17 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ohta et al. (US 7,158,637)** herein referred to as Ohta as applied to **claims 1, 4, 5, 7, 8, and 10-16** above, and further in view of **Callum (US 6,295,604)** herein referred to as Callum.

Regarding **Claims 2 and 17**, Ohta teaches the limitations of claims 1 and 12.

Ohta does not teach the storage device and method, wherein

the cryptographic processing unit manages the sequence of commands executed in each cryptographic input/output processing and rejects the execution of an incorrectly sequenced command when the cryptographic processing unit receives the incorrectly sequenced command.

Callum teaches the storage device and method, wherein

the cryptographic processing unit manages the sequence of commands executed in each cryptographic input/output processing and rejects the execution of an incorrectly sequenced command when the cryptographic processing unit receives the incorrectly sequenced command (Callum column 5 lines 26-53).

It would be obvious to someone of ordinary skill in the art at the time the invention was made, to use Callum's system of interrupting Ohta's processes if they are incorrect in sequence, since Callum states at column 5 lines 34-40 it would be beneficial to check for error or abnormal conditions in the cryptographic input or output.

Regarding **Claims 3 and 18**, Ohta discloses the limitations of claims 2 and 17.

Ohta does not teach the storage device and method wherein

when the cryptographic processing unit receives the incorrectly sequenced command, the cryptographic processing unit interrupts the cryptographic input/output processing to which the command belongs.

Callum teaches teach the storage device and method wherein

when the cryptographic processing unit receives the incorrectly sequenced command, the cryptographic processing unit interrupts the cryptographic input/output processing to which the command belongs (Callum column 5 lines 26-53 software interrupt).

It would be obvious to someone of ordinary skill in the art at the time the invention was made, to use Callum's system of interrupting Ohta's processes if they are incorrect in sequence, since Callum states at column 5 lines 34-40 it would be beneficial to check for error or abnormal conditions in the cryptographic input or output.

**Claims 6 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ohta et al. (US 7,158,637)** herein referred to as Ohta as applied to **claims 1, 4, 5, 7, 8,**

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**and 10-17** above, and further in view of **Porter et al. (US 2003/0226029)** herein referred to as Porter.

Regarding **claims 6 and 9**, Ohta teaches the limitations of claims 1 and 7.

Ohta does not teach the storage devices, wherein

the storage medium comprises a normal data storing unit and a confidential data storing unit, the normal data storing unit storing normal data to be exchanged bypassing the cryptographic processing unit, the confidential data storing unit storing the secret data to be exchanged via the cryptographic processing unit.

Porter teaches the storage devices, wherein

the storage medium comprises a normal data storing unit and a confidential data storing unit, the normal data storing unit storing normal data to be exchanged bypassing the cryptographic processing unit, the confidential data storing unit storing the secret data to be exchanged via the cryptographic processing unit (Porter paragraph 39 common memory and protected memory).

It would be obvious to one of ordinary skill in the art at the time the invention was made to incorporate both a protected and common memory in the cryptographic system of Ohta, since Porter states in paragraph [0039] that a region of memory can be designated as protected from the unauthorized use by using encryption.

**Note:** Examiner has pointed out particular references contained in the prior arts of record and in the body of this action for the convenience of the applicant. Although the

specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. Applicant should consider the entire prior art as applicable to the limitations of the claims. It is respectfully requested from the applicant, in preparing for response, to consider fully the entire reference as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior arts or disclosed by the Examiner.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole M. Young whose telephone number is 571-270-1382. The examiner can normally be reached on Monday through Friday, alt Fri off, 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NMY

9/24/2007

  
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PRIMARY EXAMINER  
9/26/2007